Ministry of
Northern Development
and Mines

Ontario

Sean Conway, Minister of Mines

ONTARIO GEOLOGICAL SURVEY

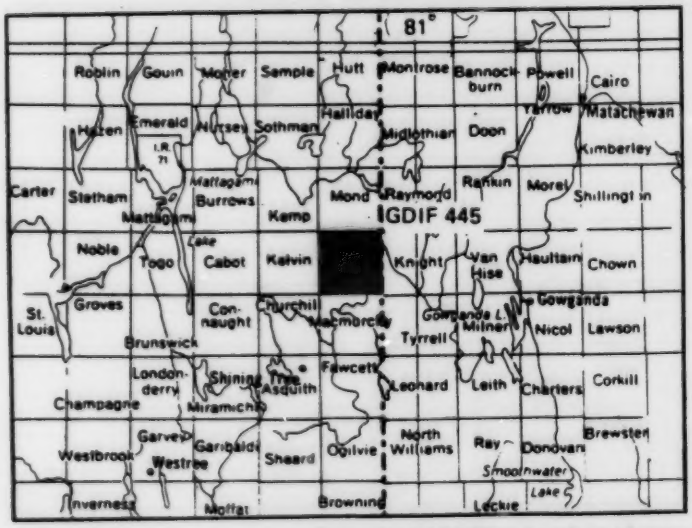
GEOLOGICAL DATA INVENTORY FOLIO

GDIF 445

NATAL TOWNSHIP

DISTRICT OF SUDBURY

Compiled by the Staff of
the Resident Geologist's Office
Cobalt



LOCATION MAP

Scale: 1:1 013 760 or 1 inch to 16 miles

89-03281/

NTS Number 41P/11

Mining Claim Map Number M.885

This project is part of the Canada-Ontario Mineral Development Agreement (COMDA).

STATEMENT: This inventory is unedited. Discrepancies may occur for which the Ontario Geological Survey does not assume liability. Information from this source may be quoted if credit is given. Reference to this inventory should be made as follows:

Ontario Geological Survey

1988: Natal Township, District of Sudbury; Ontario Geological Survey, Geological Data Inventory Folio 445, compiled by the staff of the Resident Geologist's Office, Cobalt, 27p., 2 maps.

Original Compilation by: Patricia Anderson, January 20, 1988

Date	Page Revised	Revised by

Date	Page Revised	Revised by

NATAL TOWNSHIP

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ACCOMPANYING MAPS

Property Location Map - Map 1
Exploration Data Map - Map 1
Map Scale 1: 31 680 or 1 inch to ½ mile

CONVERSION FACTORS FOR MEASUREMENTS IN ONTARIO GEOLOGICAL SURVEY PUBLICATIONS

If the reader wishes to convert imperial units to SI (metric) units or SI units to imperial units the following multipliers should be used:

CONVERSION FROM SI TO IMPERIAL			CONVERSION FROM IMPERIAL TO SI		
SI Unit	*Multiplied by*	*Gives*	*Imperial Unit*	*Multiplied by*	*Gives*
			LENGTH		
1 mm	0.039 37	inches	1 inch	**25.4**	mm
1 cm	0.393 70	inches	1 inch	**2.54**	cm
1 m	3.280 84	feet	1 foot	**0.304 8**	m
1 m	0.049 709 7	chains	1 chain	**20.116 8**	m
1 km	0.621 371	miles (statute)	1 mile (statute)	**1.609 344**	km
			AREA		
1 cm^2	0.155 0	square inches	1 square inch	**6.451 6**	cm^2
1 m^2	10.763 9	square feet	1 square foot	**0.092 903 04**	m^2
1 km^2	0.386 10	square miles	1 square mile	2.589 988	km^2
1 ha	2.471 054	acres	1 acre	0.404 685 6	ha
			VOLUME		
1 cm^3	0.061 02	cubic inches	1 cubic inch	**16.387 064**	cm^3
1 m^3	35.314 7	cubic feet	1 cubic foot	0.028 316 85	m^3
1 m^3	1.308 0	cubic yards	1 cubic yard	0.764 555	m^3
			CAPACITY		
1 L	1.759 755	pints	1 pint	0.568 261	L
1 L	0.879 877	quarts	1 quart	1.136 522	L
1 L	0.219 969	gallons	1 gallon	**4.546 090**	L
			MASS		
1 g	0.035 273 96	ounces (avdp)	1 ounce (avdp)	28.349 523	g
1 g	0.032 150 75	ounces (troy)	1 ounce (troy)	31.103 476 8	g
1 kg	2.204 62	pounds (avdp)	1 pound (avdp)	0.453 592 37	kg
1 kg	0.001 102 3	tons (short)	1 ton (short)	907.184 74	kg
1 t	1.102 311	tons (short)	1 ton (short)	0.907 184 74	t
1 kg	0.000 984 21	tons (long)	1 ton (long)	1016.046 908 8	kg
1 t	0.984 206 5	tons (long)	1 ton (long)	1.016 046 908 8	t
			CONCENTRATION		
1 g/t	0.029 166 6	ounce (troy)/ ton (short)	1 ounce (troy)/ ton (short)	34.285 714 2	g/t
1 g/t	0.583 333 33	pennyweights/ ton (short)	1 pennyweight/ ton (short)	1.714 285 7	g/t

OTHER USEFUL CONVERSION FACTORS

1 ounce (troy)/ton (short)	20.0	pennyweights/ton (short)
1 pennyweight/ton (short)	0.05	ounce (troy)/ton (short)

One gram(g) per tonne is equivalent to one part per million (1 ppm).

NOTE–Conversion factors which are in bold type are exact. The conversion factors have been taken from or have been derived from factors given in the Metric Practice Guide for the Canadian Mining and Metallurgical Industries published by The Mining Association of Canada in co-operation with the Coal Association of Canada.

NATAL TOWNSHIP

DATA SOURCES CHECK LIST

NOTE: The following sources have been searched to compile the data for this area. If no reference data was found the appropriate box is marked 'no'; if reference data was found, the box is marked 'yes'.

All reference data found are included in the following pages. If the box is blank, the data source has not yet been searched. If the box is marked N.A., the source item is Not Applicable to this area and therefore not searched.

	SOURCES OF DATA	Data	Initial
1	Resident Geologist's Office Files	Yes	D.P.A.
2	Assessment Files Research Office, Toronto	Yes	D.P.A.
3	ODM General Index; 9 volumes	Yes	D.P.A.
4	Catalogue of Airborne Geophysical Surveys (ODM)	Yes	D.P.A.
5	ODM Mineral Resources Circulars and OGS Mineral Deposits Circulars	No	D.P.A.
6	ODM Industrial Mineral Reports	No	D.P.A.
7	Bibliography of Post Precambrian Theses - Karrow (ODM MP 1)	No	D.P.A.
8	Bibliography of Precambrian Theses - Ginn (ODM MP 2)	No	D.P.A.
9	Newspaper Clippings File	Yes	D.P.A.
10	GSC Index to Publications	Yes	D.P.A.
11	OGS Index to Published Maps and Reports - MP 77 and Supplements to MP 77	Yes	D.P.A.
12	OGS Index Maps	Yes	D.P.A.
13	Source Mineral Deposit Records (O.G.S.)	No	D.P.A.
14	Author - Subject Articles File	No	D.P.A.
15	Miscellaneous Papers: ODM & OGS	Yes	D.P.A.
16	ODM Geological Circulars: OGS Study Series	No	D.P.A.
17	ODM Preliminary Reports: ODM Bulletins	Yes	D.P.A.
18	ODM – OGS Open File Reports	Yes	D.P.A.
19	OGS Northern Ontario Engineering Geology Terrain Studies	Yes	D.P.A.
20	OGS Aggregate Resources Inventory Papers	N.A.	D.P.A.
21	OGS Mineral Potential Maps	No	D.P.A.
22	Theses on File, Cobalt	No	D.P.A.
23	Aerial Photographs on File, Toronto	Yes	D.P.A.

METALS AND MINERALS REFERENCES LIST

△ anh. . . . . .Anhydrite
△ ank. . . . . .Ankerite
△ anna . . . . . Annabergite
△ ap. . . . . .Apatite
△ arg . . . . . Argentite
△ As . . . . . .Arsenic
▲ asp . . . . . .Arsenopyrite
△ asb . . . . . .Asbestos
△ ba. . . . . .Barite
△ be. . . . . .Beryl
△ Bi. . . . . .Bismuth
▲ bn . . . . . .Bornite
△ bren . . . . . .Brannerite
△ bruc . . . . . .Brucite
△ Cd . . . . . .Cadmium
△ calc. . . . . .Calcite
△ carb . . . . . .Carbonate
△ cel . . . . . .Celestite
△ cc. . . . . .Chalcocite
▲ cp. . . . . .Chalcopyrite
▲ ch. . . . . .Chert
△ clay . . . . . .Clay
△ Co . . . . . .Cobalt
△ cob. . . . . .Cobaltite
△ cb. . . . . .Columbite
▲ Cu . . . . . .Copper
△ cor . . . . . .Corundum
△ dol . . . . . .Dolomite
△ ep. . . . . .Epidote
△ ery . . . . . .Erythrite
△ fel . . . . . .Feldspar
△ fl . . . . . .Fluorite (flurospar)
▲ fu. . . . . .Fuchsite
△ gn. . . . . .Galena
△ gt. . . . . .Garnet
△ goe . . . . . .Goethite
▲ Au . . . . . .Gold
▲ gf. . . . . .Graphite
△ gl . . . . . .Gravel
△ gyp. . . . . .Gypsum
▲ hem . . . . . .Hematite
△ il . . . . . .Ilmenite
△ Fe . . . . . .Iron
△ IF. . . . . .Iron Formation
△ jas . . . . . .Jasper
△ kaol . . . . . .Kaolinite (kaolin)
△ ky . . . . . .Kyanite
△ Pb . . . . . .Lead
△ lim . . . . . .Limonite
△ Li. . . . . .Lithium
△ mgst . . . . . .Magnesite
△ mag . . . . . .Magnetite
▲ mc . . . . . .Malachite
△ Mn . . . . . .Manganese
△ mb. . . . . .Marble
△ mar. . . . . .Marcasite
△ ma . . . . . .Marl
△ mi . . . . . .Mica
△ ml . . . . . .Millerite
△ mo . . . . . .Molybdenite
△ Mo . . . . . .Molybdenum
△ mon . . . . . .Monazite
△ ne. . . . . .Nephelite (nepheline)
△ nc. . . . . .Niccolite
Ni. . . . . .Nickel
△ Nb . . . . . .Niobium
△ Pd . . . . . .Palladium
△ peat . . . . . .Peat
△ pent . . . . . .Pentlandite
△ Pt. . . . . .Platinum
▲ py . . . . . .Pyrite
△ pyl . . . . . .Pyrochlore
△ pyrl . . . . . .Pyrolusite
▲ po . . . . . .Pyrrhotite
△ q . . . . . .Quartz
△ qcv . . . . .Quartz carbonate vein
△ ra. . . . . .Radioactive minerals
△ RE . . . . . .Rare Earths
△ sd. . . . . .Sand
△ sgl . . . . . .Sand and gravel
△ ss . . . . . .Sandstone
△ scap . . . . . .Scapolite
△ shee . . . . . .Scheelite
△ serp . . . . . .Serpentine
△ sh. . . . . .Shale
△ sid . . . . . .Siderite
△ si . . . . . .Silica
△ Ag . . . . . .Silver
△ sl . . . . . .Slate
△ sm . . . . . .Smaltite
△ sod. . . . . .Sodalite
△ spec . . . . . .Specularite
▲ sp. . . . . .Sphalerite
△ spd. . . . . .Spodumene
△ staur. . . . . .Staurolite
△ stib. . . . . .Stibnite
△ st. . . . . .Stone
△ talc. . . . . .Talc
△ Te . . . . . .Tellurium
△ td. . . . . .Tetrahedrite
△ th. . . . . .Thorite
△ Th . . . . . .Thorium
△ thuc . . . . . .Thucholite
△ ti . . . . . .Titanite
△ Ti. . . . . .Titanium
△ tour . . . . . .Tourmaline
△ trap . . . . . .Trap rock
△ W. . . . . .Tungsten
△ uran . . . . . .Uraninite
△ U. . . . . .Uranium
△ verm . . . . . .Vermiculite
△ Y . . . . . .Yttrium
△ Zn . . . . . .Zinc
△ zr. . . . . .Zircon

Solid triangles indicate metal and mineral occurrences shown on the accompanying maps or listed in Drillhole Summary.

NATAL TOWNSHIP

MINERAL OCCURRENCES

Map Ref. Letter	Name(s)	Mineralization	Source Mineral Deposit Record	References in OGS Mineral Deposits Circulars & OGS Industrial Mineral Reports	Additional References and/or Remarks
A	Teegana	Cu - major Au - minor		NMI 41P/11	ODM, 1951, Vol. 60, Pt. 2, p.1

GDIF FORM NO. 1

TYPE OF WORK		Numbers below represent the year in which the work was done; e.g., 68 for 1968.																		
EXPLORATION DATA filed at the RESIDENT GEOLOGIST'S OFFICE COBALT COMPANY/AUTHOR (file number)		GEOLOGICAL	GEOCHEMICAL	TRENCHING, STRIPPING	DRILLING	ASSAY DATA	UNDERGROUND WORK	PROSPECTUS, NOTES, CORRESPONDENCE	AIRBORNE MAGNETOMETER	AIRBORNE ELECTROMAGNETIC	AIRBORNE RADIOMETRIC	GROUND MAGNETOMETER	GROUND ELECTROMAGNETIC	GROUND RADIOMETRIC	INDUCED POLARIZATON	SELF POTENTIAL	RESISTIVITY			
1	Decker, Albert			76																
2	Fuller, A.				45			45												
3	Lucky Creek Mining Co. Ltd.			56				56												
4	McIntyre Porcupine Mines Ltd.	50		50		50														
5	Teegana Mines Ltd. Nagatee Explorations Co. Ltd.			49																
6a	Timiskaming Nickel Ltd. Far North Property				67															
6b	Knight, Tyrrell, Natal, Raymond, MacMurchy & Kelvin Tps., AFRO # 63-2397					71			68	68										

GDIF FORM NO. 2

NATAL TOWNSHIP

TYPE OF WORK		Numbers below represent the year in which the work was done; e.g., 68 for 1968.																		
EXPLORATION DATA filed at the RESIDENT GEOLOGIST'S OFFICE COBALT COMPANY/AUTHOR (file number)		GEOLOGICAL	GEOCHEMICAL	TRENCHING, STRIPPING	DRILLING	ASSAY DATA	UNDERGROUND WORK	PROSPECTUS, NOTES, CORRESPONDENCE	AIRBORNE MAGNETOMETER	AIRBORNE ELECTROMAGNETIC	AIRBORNE RADIOMETRIC	GROUND MAGNETOMETER	GROUND ELECTROMAGNETIC	GROUND RADIOMETRIC	INDUCED POLARIZATON	SELF POTENTIAL	RESISTIVITY			
7a	Sutherland, Wm. Don North Group				67															
7b	Arthur Lake Group Natal, Knight, MacMurchy & Tyrrell Tps.				66 67 72	65 67 71														
8	Getty Mines Ltd. (Getty Mining Northeast Ltd.), Knight, Tyrrell, MacMurchy & Natal Tps. AFRO #2-2121, #2-2374	75 76	77		76	76						75	75							
9	Camdeck Gold Mines Ltd. Knight, MacMurchy & Natal Tps.							45												
10	Talisman Mines Ltd. Kelvin & Natal Tps.											67	67							

GDIF FORM NO. 2

DRILLHOLE SUMMARY

Map Drilling Location Number	Company Name	Company Drillhole Number	Date Drilled	Bearing Azimuth DEGREES	Initial Dip of Hole DEGREES	Thickness of Overburden FEET	Total Length of Hole FEET	Mineralization Noted in Log	Assay Data Included for
1	Fuller, A.	1-6	no	logs					
2	Fuller, A.	7-12	no	logs					
3	Timiskaming Nickel Ltd. (Far North Property)	N-1	1967	090	-45	4	361	py	
4	Timiskaming Nickel Ltd. (Far North Property)	N-2	1967	-	-90	6	361	py	
5	Sutherland, Wm. Don	T-1	1967	090	-45	16	500	py, po	
6	Sutherland, Wm. Don	T-2	1967	090	-45	9	449	py	
7	Sutherland, Wm. Don	T-3	1967	090	-45	124	379		
8	Sutherland, Wm. Don	T-4	1967	090	-45	12	442		
9	Sutherland, Wm. Don	T-5	1967	090	-45	18	504	py, po	
10	Sutherland, Wm. Don	T-6	1967	090	-45	30	606	py	

GDIF FORM NO. 3

DRILLHOLE SUMMARY

Map Drilling Location Number	Company Name	Company Drillhole Number	Date Drilled	Bearing Azimuth DEGREES	Initial Dip of Hole DEGREES	Thickness of Overburden FEET	Total Length of Hole FEET	Mineralization Noted in Log	Assay Data Included for
11	Sutherland, Wm. Don, Arthur Lake Group (drilled from Knight Tp)	A-2	1966	260	-45	10	1006	py, cp	Ni
12	Sutherland, Wm. Don, Arthur Lake Group (drilled from Knight Tp)	A-3	1966	260	-45	6	326	py, po	Ni
13	Sutherland, Wm. Don, Arthur Lake Group	A-7	1966	090	-45	20	1195	py, gf, fu, sp, ch, mc, hem	Ni
13		A-13	1967	270	-45	6	342		Ni
14	Sutherland, Wm. Don, Arthur Lake Group	A-10	1967	270	-45	120	602		Ni
14		A-11	1967	090	-60	107	525		Ni
15	Sutherland, Wm. Don, Arthur Lake Group	A-14	1967	090	-45	70	776	py	Ni
16	Sutherland Wm. Don, Arthur Lake Group	A-15	1967	090	-45	126	507	py, gf	Ni
17	Sutherland, Wm. Don Arthur Lake Group	A-16	1967	270	-45	70	156	py, gf	Ni
17		A-18	1967	090	-45	84	226	gf	Ni
17		A-20	1967	045	-50	80	456	gf	Ni

GDIF FORM NO. 3

DRILLHOLE SUMMARY

Map Drilling Location Number	Company Name	Company Drillhole Number	Date Drilled	Bearing Azimuth DEGREES	Initial Dip of Hole DEGREES	Thickness of Overburden FEET	Total Length of Hole FEET	Mineralization Noted in Log	Assay Data Included for
18	Sutherland, Wm. Don Arthur Lake Group	A-17	1967	090	-45	33	497		Ni
19	Sutherland, Wm. Don Arthur Lake Group	A-19	1967	090	-45	12	651		Ni
20	Sutherland, Wm. Don Arthur Lake Group	E-1	1967	-	-90	128	607	asp, fu, py	
21	Sutherland, Wm. Don Arthur Lake Group	A-21	1972	060	-45		110		
22	Sutherland, Wm. Don Arthur Lake Group	A-8	1966	090	-44	22	660		Ni
23	Sutherland, Wm. Don Arthur Lake Group	A-9	1966	090	-45	28	700		Ni
24	Getty Mining Northeast Ltd.	ST-76-1	1976	063	-45	86	497	gf, py, cp, bn	Au, Ag, Zn, Pb, Cu

NATAL TOWNSHIP

DRILLHOLE SUMMARY

Map Drilling Location Number	Company Name	Company Drillhole Number	Date Drilled	Bearing Azimuth	Initial Dip of Hole	Thickness of Overburden	Total Length of Hole	Mineralization Noted in Log	Assay Data Included for

GDIF FORM NO. 3

10 NATAL TOWNSHIP

AIRBORNE GEOPHYSICAL SURVEY DATA

No.	By / For	Type of Survey	Flight Altitude	Flight Line Direction	Flight Line Spacing
6	By: Huntec Ltd. and Lockwood Survey Corp. Ltd. For: Timiskaming Nickel Ltd.	EM: in-phase/out-of-phase system Mag: Mark III Fluxgate	100'	E/W+N/S tie-lines	1/16th mile

GDIF FORM NO. 4

NATAL TOWNSHIP

GEOCHEMICAL SURVEY DATA

Map Sample Site Reference Number	Type of Survey	Analysis For	By	Reference
8	Soil Geochemistry Upper B horizon samples	Zinc and Copper by hot nitric-hydrochloric acid process and atomic absorption	By: Bondar-Clegg Co. Ltd., Ottawa For: Getty Mines Ltd.	Natal Tp. AF: Getty Mines Ltd.

GDIF FORM NO. 5

MISCELLANEOUS DATA

AGE DATING

Site	Method	Material	Reference	Result
	No data available as of January 20, 1988			

NEWSPAPER CLIPPINGS FILE

NOTE: A file of newspaper clippings about the companies listed below, who have worked in this area, is maintained in the Regional/Resident Geologist's Office. Cobalt

Teegana Mines Ltd.

GDIF FORM NO. 7

NATAL TOWNSHIP

ODM GENERAL INDEX SEARCH

Words searched:

Arthur Lake
Arthur Lake Mines Ltd.
Barite Lake
Bigfour Lake
Camdeck Gold Mines Ltd.
Decker, Albert
Elbow Rapids
Fuller, A.
Getty Mines Ltd.
Little Pigeon Lake
Lucky Creek Mining Co. Ltd.
McIntyre Porcupine Mines Ltd.

Index Volume	Listing:	Report Volume	Part	Page
2	Natal Tp., Sud.			
	Cobalt Series cut by diabase	*35	6	80
	Gold quartz veins	*35	6	80
	Keewatin rocks, look-out tower	*35	6	79
	Map - See map 35j with	*35	6	
3	Natal Tp., Sud.			
	Rocks	*41	2	35, 37, 40
	see also map 41b with	*41	2	
4	Camdeck Gold Mines, Ltd.			
	Incorporated	54	1	44
	Nagatee Exploration Co., Ltd.			
	Incorporated	57	1	49
	Teegana Mines, Ltd.			
	Incorporated	57	1	48
5	Camdeck Gold Mines, Ltd.			
	Name changed	64	1	60
	Natal Tp., Sud.	60	2	1
	Teegana Mines, Ltd.			
	Capital; officers; operations	60	2	1
	Succeeded by Van Packer Mines of Canada	61	2	1

GDIF FORM NO. 8

ODM GENERAL INDEX SEARCH

Words searched:

Nagatee Exploration Co. Ltd.
Natal Creek
Natal Lake
Natal Township
Perth Creek
Pigeon Creek
Ribble Rapids
Seganku Creek
Seganku Lake
Sutherland, Wm. Don
Talisman Mines Ltd.
Teegema Vein

Index Volume	Listing:	Report Volume	Part	Page
6	Lucky Creek Mining Co. Ltd.			
	Incorporated	66	1	33
	Talisman Mines, Ltd.			
	Incorporated	66	1	34
8	Arthur Lake			
	Knight Tp., Timiskaming Dist.	MP59		115
	Arthur Lake Mines, Ltd.			
	Knight Tp., Timiskaming Dist.	MP59		115
	Camdeck Mines, Ltd.			
	Knight Tp., Timiskaming Dist.	MP59		115
	Decker, A.			
	Knight Tp., Timiskaming Dist.	MP59		111, 112, 115
	Lucky Creek Mining Co. Ltd.			
	Natal Tp., Sudbury Dist.	MP59		112
	McIntyre Porcupine Mines, Ltd.			
	Natal Tp., Sudbury Dist.	MP59		112, 114
	Natal & Knight Tps., Sudbury & Timiskaming Dist.			
	Summary of field work, 1974 by M. W. Carter	MP59		110-116
	Talisman Mines, Ltd.			
	Kelvin Tp., Sudbury Dist.	MP63		78

NATAL TOWNSHIP

GDIF FORM NO. 8

ODM GENERAL INDEX SEARCH

Words searched:

Teegana Mines Ltd.
Timiskaming Nickel Ltd.
West Montreal River

Index Volume	Listing:	Report Volume	Part	Page
8	Teegema Vein			
	Natal Tp., Sudbury Dist.	MP59		114
	Timiskaming Nickel, Ltd.			
	Natal Tp., area, Timiskaming & Sudbury Dist.	MP18		7
		MP59		111, 112
		MP63		77, 78
	* Out of Print			

GDP FORM NO. 8

ODM GENERAL INDEX SEARCH

Words searched:

Index Volume	Listing:	Report Volume	Part	Page

NATAL TOWNSHIP

GDIF FORM NO. 8

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
		REGIONAL GEOLOGICAL COMPILATION MAPS		
Ginn, R.M.	1964	Timmins-Kirkland Lake Sheet, Cochrane, Sudbury & Timiskaming Districts, Ontario, Geological Compilation Series	ODM Map 2046	1:253 440
Pyke, D.R. Ayres, L.D. Innes, D.G.	1973	Timmins-Kirkland Lake Geological Compilation Series, Cochrane, Sudbury & Timiskaming Districts, Ontario	ODM Map 2205	1:253 440
		GEOPHYSICAL MAPS		
GSC	1957	Aeromagnetic Map, Shining Tree, Ontario	GSC Map 285G	1:63 360
OGS	1979	Airborne Gamma-Ray Spectrometry Maps and Profiles	OGS Map Set 80372-80410	1:250 000
Gupta, V.K.	1981	Bouger Gravity and Generalized Geological Map of Gogama-Gowganda Area, NTS 41P, Timiskaming & Sudbury Districts, Ontario	OGS Map P.2481	1:100 000
Symons, D.T.A. Stupavsky, M.	1983	Grant No. 143: Analysis of Aeromagnetic Anomalies over Algoman-Type Iron Formations	OGS OFR 5476	
Redman, J.D. Strangway, D.W.	1986	Ontario Geoscience Research Grant Program, Grant No. 118, Surface Electromagnetic Mapping in Northern Ontario	OGS OFR 5615	

GDIF FORM NO.9

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
		SURFICIAL, PLEISTOCENE, TERRAIN ENGINEERING		
Sado, E.V. Clarke, W.A.	1974	Quaternary Geology, Halliday, Midlothian, Kelvin, Natal Tps. & parts of Churchill & MacMurchy Tps., Timiskaming & Sudbury Districts, Ontario	ODM Map P.957	1:31 680
Surveys & Mapping Branch, EMR	1976	Sinclair Lake	NTS 41P/14	1:50 000
Surveys & Mapping Branch, EMR	1976	Shining Tree, Ontario	NTS 41P/11	1:50 000
Roed, M.A. Hallett, D.R.	1980	Gogama Area, NTS 41P/NW, Timiskaming & Sudbury Districts, Ontario	NOEGTS 82	
Roed, M.A. Hallet, D.R.	1980	NOEGTS Data Base Map, Gogama, NTS 41P/NW, Timiskaming & Sudbury Districts, Ontario	OGS Map 5019	1:100 000
MNR	1982	Ontario Basic Map Sheets	MNR Maps 20 17 4800 52800 20 17 4900 52800 20 17 4800 52700 20 17 4900 52700	1:20 000
		Natal Township Claim Map	MNR Plan No. M.885	1"=40 ch.

GDIF FORM NO.9

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
		MINERAL POTENTIAL		
Reid, J.A.	1943	Mineral Resources of the Timiskaming Silver-Cobalt Area, Ontario	ODM Bulletin No. 134	
Springer, J.	1977	Ontario Mineral Potential, Gogama Sheet and part of Ville Marie Sheet, NTS 41P, 31MW, Timiskaming & Sudbury Districts, Ontario	OGS Map P.1514	1:250 000
Kretschmar, U. Kretschmar, D.	1980	Talc, Magnesite and Asbestos Deposits in the Kirkland Lake-Timmins Area, NTS 31M, 32D, 41O, 41P, 42A, 42B, Timiskaming + 2 AL Districts, Ontario	OGS OFR 5310	
Hunter & Associates Ltd.	1984	Peat and Peatland Evaluation of the New Liskeard Area, NTS 31M/12 & 41P/E, Timiskaming + 2 Other Districts, Ontario	OGS OFR 5486	3 Volumes
Long, D.G.F. Leslie, C.A.	1986	The Placer Gold Potential of the Early Aphebian Gowganda Formation along the Northern margin of the Cobalt Embayment, Ontario with Comments on Associated Concentrations of Silver & Copper	OGS OFR 5608	
		GEOCHEMICAL		
Closs, L.G. Sado, E.V.	1975	Exploration Geochemistry-Quaternary Geology Investigations in Parts of Halliday & AL 5 townships, NTS 41P/N, Sudbury & Timiskaming Districts, Ontario	ODM OFR 5154	

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
		GEOCHEMICAL		
Closs, L.G.	1975	Geochemical Distribution of Zn in B Horizon Soils & Till Components in Parts of Kelvin & 3 AL Tps., NTS 41P/11, Sudbury Districts, Ontario	ODM Map P.1003	1:31 680
Closs, L.G.	1975	Geochemical Distribution of Ni in B Horizon Soils & Till Components in Parts of Kelvin & 3 AL Tps., NTS 41P/11, Sudbury Districts, Ontario	ODM Map P.1004	1:31 680
Closs, L.G.	1975	Geochemical Distribution of Co in B Horizon Soils & Till Components in Parts of Kelvin & 3 AL Tps., NTS 41P/11, Sudbury Districts, Ontario	ODM Map P.1005	1:31 680
Closs, L.G.	1975	Geochemical Distribution of Cu in B Horizon Soils & Till Components in Parts of Kelvin & 3 AL Tps., NTS 41P/11, Sudbury Districts, Ontario	ODM Map P.1006	1:31 680
Closs, L.G.	1975	Geochemical Distribution of Cr in B Horizon Soils & Till Components in Parts of Kelvin & 3 AL Tps., NTS 41P/11, Sudbury Districts, Ontario	ODM Map P.1007	1:31 680
Closs, L.G.	1975	Geochemical Distribution of Mn in B Horizon Soils & Till Components in Parts of Kelvin & 3 AL Tps., NTS 41P/11, Sudbury Districts, Ontario	ODM Map P.1008	1:31 680

GDIF FORM NO.9

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
		GEOCHEMICAL		
Closs, L.G.	1976	Bedrock Geochemistry in parts of Halliday, Midlothian, Kelvin, Natal, Churchill & MacMurchy Tps., NTS 41P/NW, Sudbury & Timiskaming Districts, Ontario	ODM OFR 5177 ODM Maps P.1072-1077	
Closs, L.G.	1979	Geochemical Distribution of Zinc in Bedrock from parts of Kelvin, Natal, Churchill & MacMurchy Tps., NTS 41P/11E & 14E, Sudbury Districts, Ontario	ODM Map P.1072	1:31 680
Closs, L.G.	1979	Geochemical Distribution of Nickel in Bedrock from parts of Kelvin, Natal Churchill & MacMurchy Tps., NTS 41P/11E & 14E, Sudbury Districts, Ontario	ODM Map P.1073	1:31 680
Closs, L.G.	1979	Geochemical Distribution of Copper in Bedrock from parts of Kelvin, Natal, Churchill & MacMurchy Tps., NTS 41P/11E & 14E, Sudbury Districts, Ontario	ODM Map P.1074	1:31 680
Closs, L.G.	1979	Geochemical Distribution of Iron in Bedrock from parts of Kelvin, Natal Churchill & MacMurchy Tps., NTS 41P/11E & 14E, Sudbury Districts, Ontario	ODM Map P.1075	1:31 680
Closs, L.G.	1979	Geochemical Distribution of Silica in Bedrock from parts of Kelvin, Natal, Churchill & MacMurchy Tps., NTS 41P/11E & 14E, Sudbury Districts, Ontario	ODM Map P.1076	1:31 680

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
		GEOCHEMICAL		
Closs, L.G.	1979	Geochemical Distribution of Mercury in Bedrock from parts of Kelvin, Natal, Churchill & MacMurchy Tps., NTS 41P/11E & 14E, Sudbury Districts, Ontario	ODM Map P.1077	1:31 680
Closs, L.G. Sado, E.V.	1982	Bedrock and Overburden Geochemistry Investigations in the Midlothian Lake and Natal Lake Areas, NTS 41P/N, Sudbury & Timiskaming Districts, Ontario	OGS Study 24	
		GEOLOGICAL REPORTS AND MAPS		
Park, W.A.	1907	The Geology of a District from Lake Timiskaming Northward	*GSC Summary Report 1904 Vol. XVI, Pt. A	pp. 198-225
Collins, W.H.	1909	Preliminary Report on the Gowganda Mining Division, District of Nipissing, Ontario	*GSC Separate Report 1075 *GSC Map 1076	1:63 360
Collins, W.H.	1914	The Geology of the Gowganda Mining Division	*GSC Memoir 33 *GSC Map 64A	1:63 360
Graham, A.R.	1932	Tyrrell-Knight Area, Timiskaming & Sudbury Districts, Ontario	*ODM AR 1932, Vol. 41, Pt. 2 *ODM Map 41b	pp.25-61 1:47 520
Savage, W.S. Fenwick, K.G.	1962	Gogama Sheet, Districts of Sudbury and Timiskaming, Ontario	ODM Map P.151	1:126 720

GDIF FORM NO.9

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
		GEOLOGICAL REPORTS AND MAPS		
Kutina, J. & Fabbri, A.	1971	Relationship of Structural Lineaments and Mineral Occurrences in the Abitibi Area of the Canadian Shield	GSC Paper 71-9	36 p.
Carter, M.W.	1974	No. 18, Natal and Knight Townships, Districts of Sudbury and Timiskaming; in Summary of Field Work, 1974, by the Geological Branch, edited by V.G. Milne, D.F. Hewitt, and K.D. Card, Ontario Div. Mines	MP59	pp. 110-116
Carter, M.W.	1975	Natal Township, NTS 41P/11, Sudbury District, Ontario	ODM Map P.1036	1:15 840
Jolly, W.T.	1978	Metamorphic History of the Archean Abitibi Belt	GSC Paper 78-10	pp. 63-78
Carter, M.W.	1980	Shining Tree Area, NTS 41P/11, Timiskaming & Sudbury Districts, Ontario with:	OGS OFR 5346	
Carter, M.W.,	1981	Shining Tree Area, NTS 41P/11, Timiskaming & Sudbury Districts, Ontario	OGS Map P.2313	1:50 000
Carter, M.W.	1981	Natal and Knight Townships, NTS 41P/10NW+11NE, Sudbury & Timiskaming Districts, Ontario	OGS OFR 5337	
Carter, M.W.	1983	Geology of Natal and Knight Townships NTS 41P/10NW+11NE, Sudbury & Timiskaming Districts, Ontario	OGS Report 225	

SELECTED REFERENCES

Author	Date	Title	Reference	Map Scales and/or Report Pages
		GEOLOGICAL REPORTS AND MAPS		
Carter, M.W.	1983	Natal and Knight Townships, NTS 41P/10NW+11E, Sudbury & Timiskaming Districts, Ontario	OGS Map 2465	1:31 680
Legun, A.	1984	Huronian Stratigraphy and Sedimentation in Cobalt area, NTS 31M/W+41P, Ontario	OGS OFR 5508	
		JOURNAL ARTICLES, THESES, TECHNICAL REPORTS		
		No data available as of January 20, 1988		
		* Out of Print		

NOTES AND ADDENDA

The exploration data map shows only the most important minerals found at each site. All the minerals noted are listed in the mineral occurrences or the drill hole data.

On the maps, only the areas for which work has been submitted to the Ministry are shown and thus a company may hold, or have held in the past, more ground than is shown.

No present or past producers.

The township was closed to staking in 1978 due to the Bear Island Indian Caution.

AIR PHOTOS - on File in Toronto

Only 1977 photos are available for viewing at the Public Serivce Centre, Room 1640, Whitney Block.

Photos can also be ordered from here for the years 1946, 1958 and 1970.

Year	Roll	Strip	Photo
1946	209	103	47-54
	61	102	50-58
	56	101	48-55
	56	100	49-56
1963	22	4728	110
	23	4729	181-182
	23	4730	214
	24	4731	179
1970	11	4728	22-29
	23	4729	242-246
	11	4729	107-112
	48	4730	69-75
	48	4731	31-37
	21	4731	68-70

AIR PHOTOS - on File in Cobalt

Year	Roll	Strip	Photo
1959	50	4726	32-37
	39	4727	36-42
	72	4728	118-123
	72	4729	126-131
	39	4729	131-132
1970	11	4728	22-29
	23	4729	241-246
	11	4729	107-112
	48	4730	68-75
	48	4731	30-37
	21	4731	70

MOND

47°45'30"

81°00'30"

Segank Cr.

Segank Cr.

Segank Cr.

Drop L.

Pigeo L.

Pigeon Cr.

Pigeon Cr.

Seganku

Little Pigeon

Montreal R.

Arthur L.

5

3

3

3

3

4

6a

6b

6b

7a

7b

1

10

KELVIN

KNIGHT

Ontario

ONT

PR

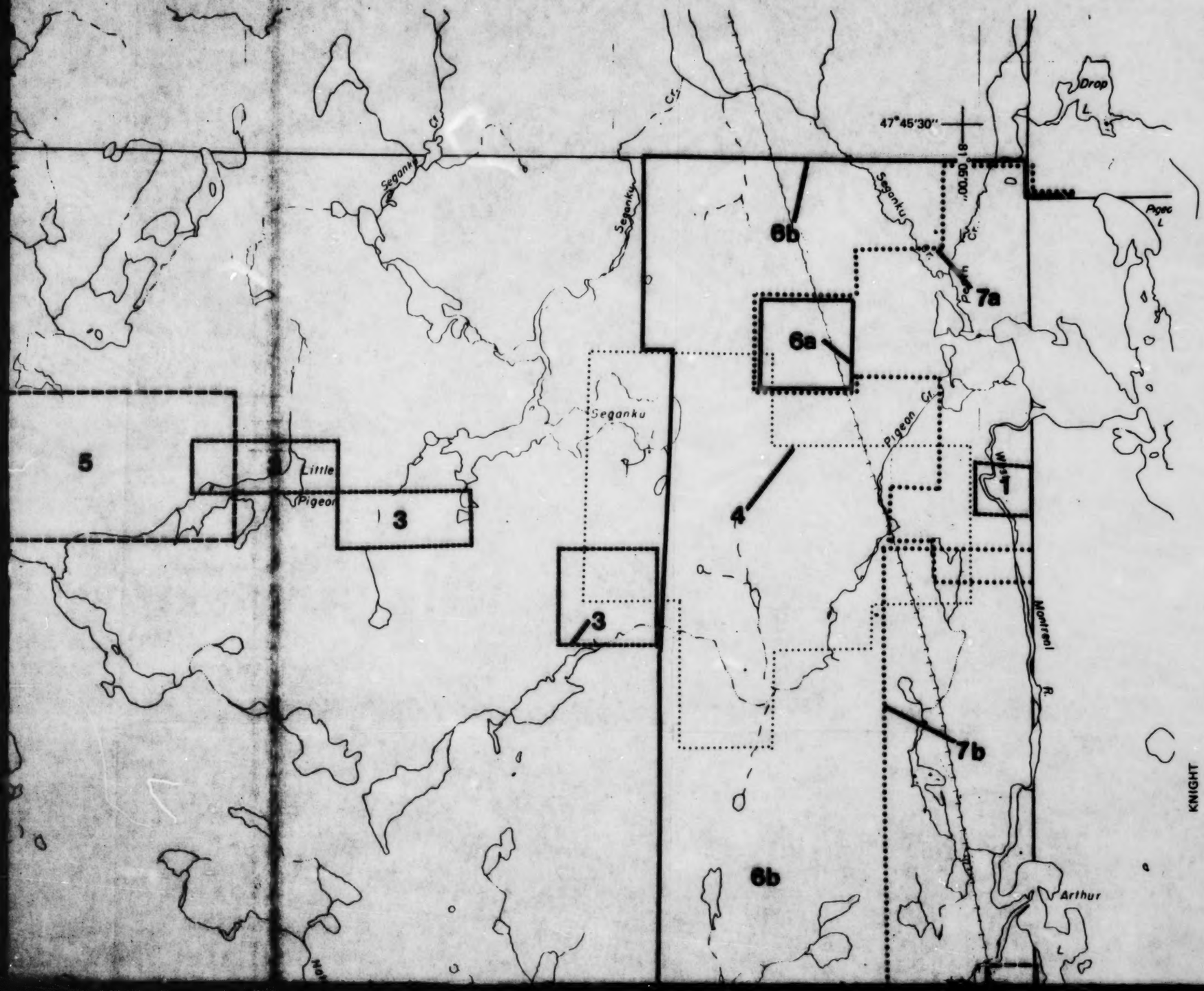
GEOLOGICA

NAT

Kilometre 0.5

Mile 0.5

MOND



KNIGHT

Ministry of Northern Development and Mines

Ontario

Sean Conway, Minister of Mines

ONTARIO GEOLOGICAL SURVEY

PROPERTY LOCATION MAP

GEOLOGICAL DATA INVENTORY FOLIO 445

(Map 1 of 2)

NATAL TOWNSHIP

DISTRICT OF SUDBURY

Scale 1:31 680

Kilometre 0.5 0 0.5 1 Kilometre

Mile 0.5 0 0.5 1 Mile

NAT

Kilometre 0.5

Mile 0.5

EXPL

Refere
See lis

Small

File ce

KELVIN

KNIGHT

MACMURCHY

Bigfour

Lake

81°12'00"

47°40'00"

Natal

Natal Cr.

Montreal

West

Montreal R.

Arthur

Baute L

Ashburn L

Little Pigeon

Pigeon

5

3

3

3

4

1

10

7b

6b

8

8

9

NATAL TOWNSHIP

DISTRICT OF SUDBURY

Scale 1:31 680

Kilometre 0.5 0 0.5 1 Kilometre

Mile 0.5 0 0.5 1 Mile

KNIGHT

MACMURCHY

EXPLORATION DATA FILE AREAS

- Reference number is always inside work area outlined. See listing in text pages.
- Small area of exploration
- File covers whole township or area

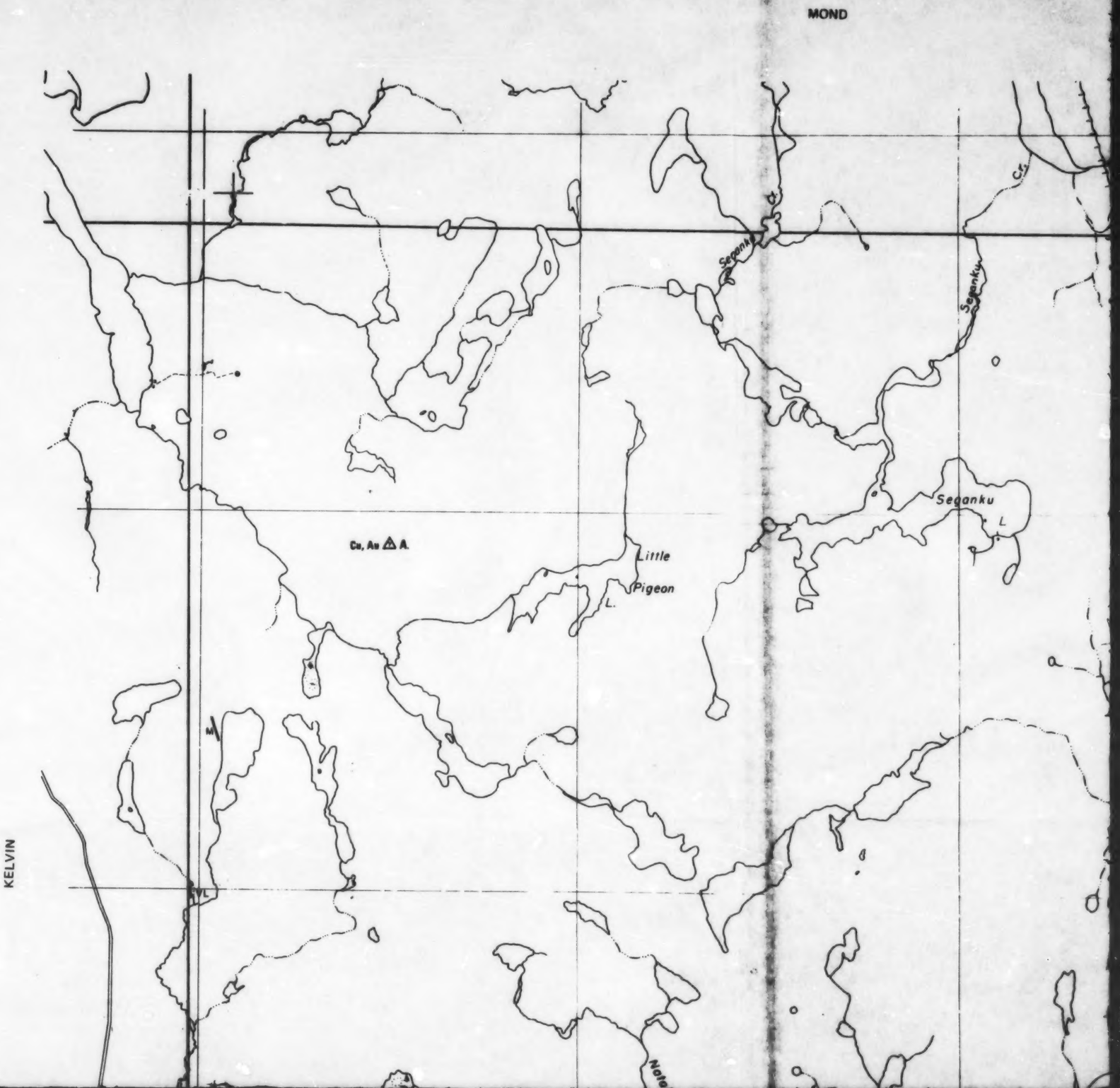
TYPES OF DATA SHOWN ON THIS MAP

GEOCHEMICAL AND GEOCHRONOLOGICAL DATA

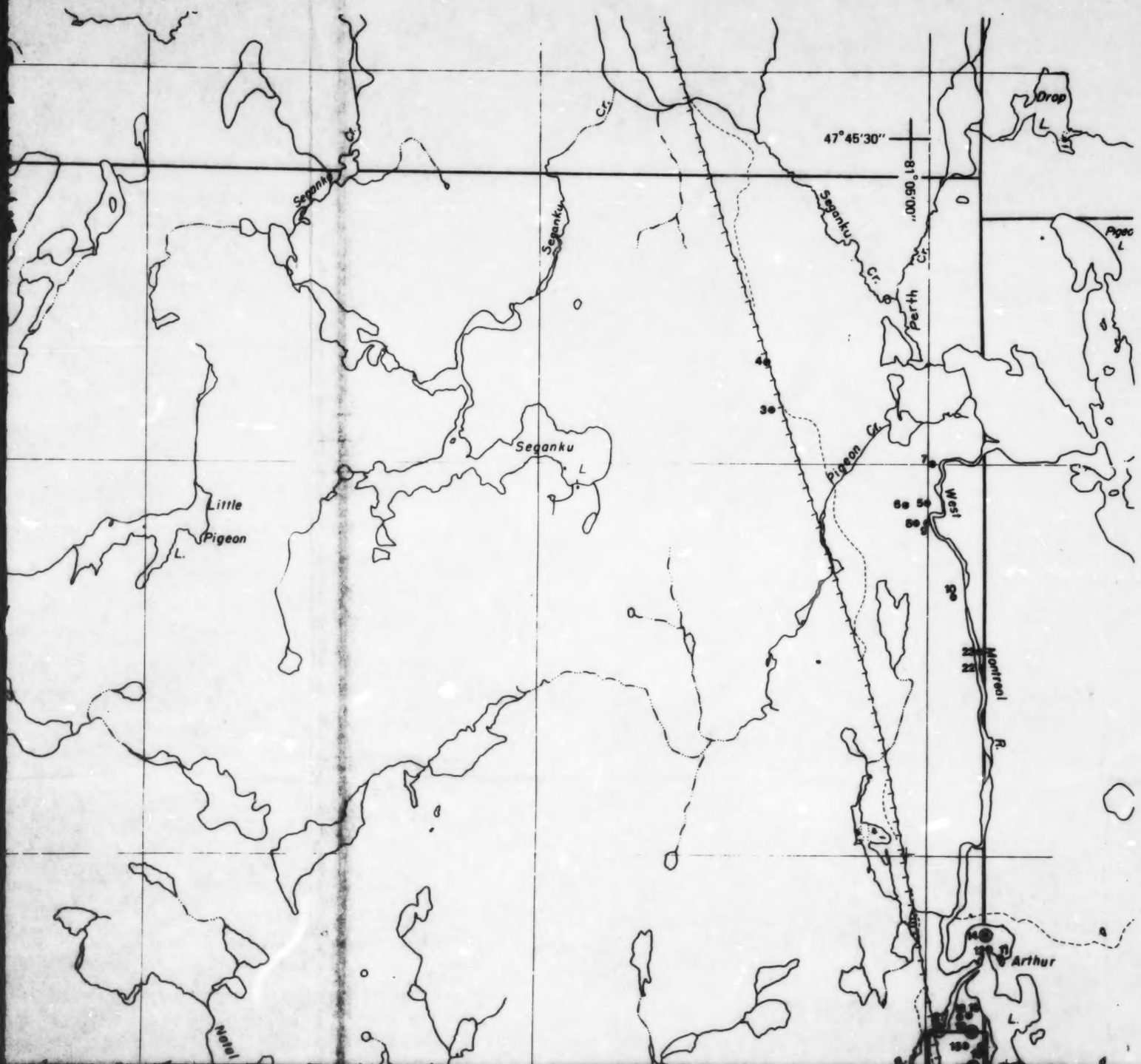
- Geochemical sample site, with reference number
- Area of geochemical sampling, with reference number
- Age dating material sampling site, with reference number

GEOPHYSICAL ANOMALIES

- AM — Airborne magnetic anomaly
- Airborne electromagnetic anomaly Length of anomaly along flight line
- Airborne electromagnetic anomaly Location of anomaly along flight line
- Airborne electromagnetic anomaly Conductor axis: definite, probable, possible
- ARA — Airborne radiometric anomaly
- M — Ground magnetic anomaly
- VL — Ground electromagnetic anomaly (VL - Vertical loop; HL - Horizontal loop VLF - Very low freq.; Turam; JEM - Crone Em - 16)
- RA — Ground radiometric anomaly
- IP — Induced polarization anomaly
- SP — Self potential anomaly
- AFMAG — Audio-frequency magnetic anomaly (total intensity)
- R — Resistivity anomaly
- GR — Gravity anomaly



MOND



Ministry of Northern Development and Mines

Ontario

Sean Conway, Minister of Mines

ONTARIO GEOLOGICAL SURVEY

EXPLORATION DATA MAP

GEOLOGICAL DATA INVENTORY FOLIO 445

(Map 2 of 2)

NATAL TOWNSHIP

DISTRICT OF SUDBURY

Scale 1:31 680

Kilometre 0.5 0 0.5 1 Kilometre

Mile 0.5 0 0.5 1 Mile

GEOLOGICAL AND MINING SYMBOLS

TYPES OF DATA SHOWN ON THIS MAP

MINERAL OCCURRENCES

- cp A. — Mineral occurrence at surface, with reference letter
- Au A. 64' — Mineral occurrence with shaft, depth given with reference letter
- Ag A. — Mineral occurrence reported but exact location uncertain, with reference letter
- cp A. — Mineralized float with reference letter
- A. — Mineral occurrence in drillhole, with reference letter, and drillhole number

DRILLHOLES

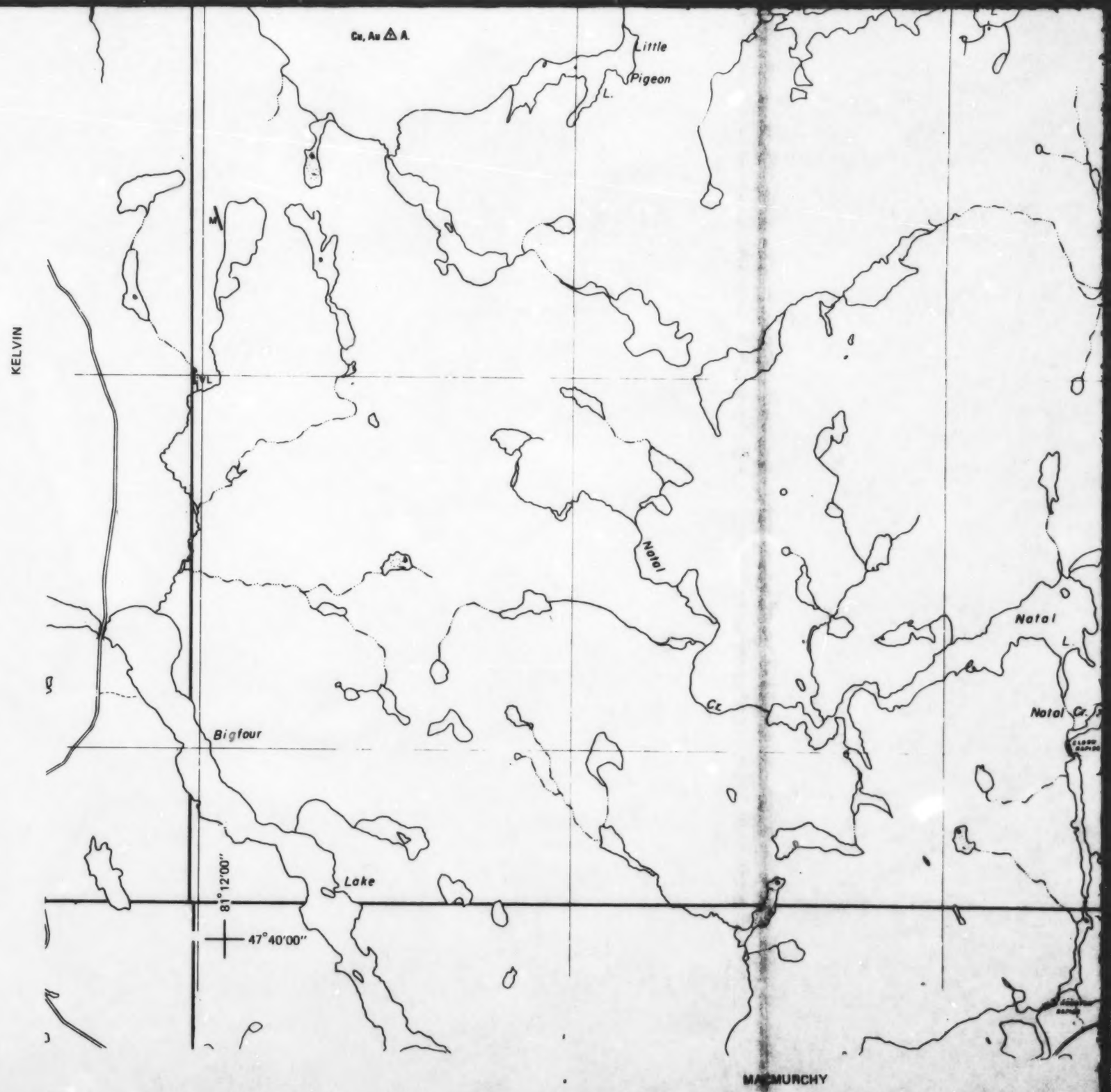
- ●² — Location of single drillhole, with reference number

- ☐ AM — Airborne magnetic anomaly
- ☐ Airborne electromagnetic anomaly
  Length of anomaly along flight line
- ☐ Airborne electromagnetic anomaly
  Location of anomaly along flight line
- ☐ Airborne electromagnetic anomaly
  Conductor axis: definite, probable, possible
- ☐ ARA — Airborne radiometric anomaly
- ■ M — Ground magnetic anomaly
- ■ VL — Ground electromagnetic anomaly
  (VL - Vertical loop; HL - Horizontal loop
  VLF - Very low freq.; Turam; JEM -
  Crone Em - 16)
- ☐ RA — Ground radiometric anomaly
- ☐ IP — Induced polarization anomaly
- ☐ SP — Self potential anomaly
- ☐ AFMAG — Audio-frequency magnetic anomaly
  (total intensity)
- ☐ R — Resistivity anomaly
- ☐ GR — Gravity anomaly

MISCELLANEOUS DATA

- ☐ Trenching, pit
- ☐ Adit
- ☐ Open pit
- ☐ Rock quarry
- ☐ Sand and/or gravel pit

NOTE: Consult the text that accompanies this map for pertinent lists of data, references, and abbreviations.



Scale 1:31 680

Kilometre 0.5 0 0.5 1 Kilometre

Mile 0.5 0 0.5 1 Mile

GEOLOGICAL AND MINING SYMBOLS

TYPES OF DATA SHOWN ON THIS MAP

MINERAL OCCURRENCES

- cp A. — Mineral occurrence at surface, with reference letter
- Au A. 84' — Mineral occurrence with shaft, depth given with reference letter
- Ag A. — Mineral occurrence reported but exact location uncertain, with reference letter
- cp A. — Mineralized float with reference letter
- A. — Mineral occurrence in drillhole, with reference letter, and drillhole number

DRILLHOLES

- ●² — Location of single drillhole, with reference number
- ◉² — Location of closely spaced group of drillholes, with reference number
- ⊙² — Drillhole, exact location uncertain, with reference number
- ◡ — Property with underground drillholes in this general area, with reference number
- ○² — Property with drillholes which have not been plotted on map, with reference number
- ⊕² — Reverse circulation drillhole; churn drilling, with reference number

EDIL 772